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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------------|------------------|
| 10/769,159 | 01/29/2004 | Byoung-Ok Min | P/923-374 | 7772 |
| 2352 | 7590 | 03/15/2006 | EXAMINER CANNING, ANTHONY J | |
| OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403 | | | ART UNIT 2879 | PAPER NUMBER |

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------|----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/769,159 | MIN, BYOUNG-OK | |
| | Examiner | Art Unit | |
| | Anthony J. Canning | 2879 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/06 and 10/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 29 December 2005.

Information Disclosure Statement

2. The information disclosure statement filed 24 October 2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because there is no dated listed for the publication of the English abstract for European patent application no. EP 04 29 0009.2. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by

5. As to claim 1, Turner et al. disclose a lighting apparatus using microwave energy, including: a magnetron disposed inside a casing (see Fig. 1, items 10 and 11; page 4, the last paragraph), for generating microwave energy (page 4, the last paragraph); a waveguide for guiding microwave energy (see Fig. 1, item 27; page 5, the second paragraph); a resonator providing a resonant region in which the microwave energy is resonated (see Fig. 1, item 20; page 5, first paragraph; the screen assembly of Turner has the same structure as the claimed resonator); a bulb disposed inside the resonator (see Fig. 1, item 21; page 5, first paragraph), and filled with a material which emits light, when excited by the microwave energy (page 1, the first paragraph under Discussion of the Prior Art; page 5, the first paragraph); and a rear mirror integrally fixed to a rear of the bulb, for forwardly reflecting light rearwardly emitted from the bulb (see Fig. 1, item 50; page 6, the last paragraph).

6. As to claim 2, Turner et al. disclose the apparatus of claim 1. Turner further discloses that the rear mirror is formed in a hemispherical shape having a curved shape (page 7, the last paragraph, convex and concave are both hemispherical curved shapes).

7. As to claim 3, Turner et al. disclose the apparatus of claim 2. Turner et al. further disclose that the bulb is positioned at a focal point of the curved surface of the rear mirror (page 7, last paragraph, the reflector can be "contoured as desired" a desired effect is having the bulb placed at a focal point of the curved mirror).

8. As to claim 4, Turner et al. disclose the apparatus of claim 1. Turner further discloses that the rear mirror is made of a quartz material (page 6, the last paragraph, fused silica is quartz).

9. As to claim 5, Turner et al. disclose the apparatus of claim 1. Turner et al. further disclose that a fixed mirror fixed to the casing at a rear side of the bulb and having a hole in which a bulb stem rearwardly extended from the bulb is rotatably inserted, for forwardly reflecting light emitted to the rear of the bulb (see Fig. 6, item 61; page 8, second paragraph).

10. As to claim 7, Turner et al. disclose the apparatus of claim 5. Turner et al. further disclose that the fixed mirror is formed in a hemispherical shape having a curved shape (see Fig. 6, item 61; page 8, second paragraph).

11. As to claim 9, Turner et al. disclose the apparatus of claim 5. Turner et al. disclose that the rear mirror is formed in a hemispherical shape having a curved shape (page 7, the last paragraph, convex and concave are both hemispherical curved shapes).

12. As to claim 10, Turner et al. disclose the apparatus of claim 9. Turner et al. further disclose that the bulb is positioned at a focal point of the curved surface of the rear mirror (page 7, last paragraph, the reflector can be "contoured as desired" a desired effect is having the bulb placed at a focal point of the curved mirror).

13. As to claim 11, Turner et al. disclose the apparatus of claim 5. Turner et al. further disclose that the rear mirror is made of a quartz material (page 6, the last paragraph, fused silica is quartz).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turner et al. (WO 97/27617) in view of Guenter et al. (EP 1,124,089 A2).

16. As to claim 6, Turner et al. disclose the apparatus of claim 5. Turner et al. fail to disclose that the diameter of the hole of the fixed mirror is formed to be smaller than a width of the rear mirror.

Guenter et al. disclose a light emitting apparatus with a rear and a fixed mirror (see Fig. 3, items 42, 44, and 20; paragraph 0009; the bottom of section 44 is narrower than the widest portion of the rear mirror 22). The rear mirror improves brightness of the device by preventing losing light behind the rear mirror.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the light-emitting device of Turner et al. to include that the diameter of the hole of the fixed mirror is formed to be smaller than a width of the rear mirror, as

taught by Guenter et al., so as to improve the brightness of the device by preventing lost light behind the rear mirror.

17. Claims 8, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turner et al. (WO 97/27617) in view of Roberts (U.S. 4,658,179).

18. As to claim 8, Turner et al. disclose the apparatus of claim 7. Turner et al. fail to disclose that the bulb is positioned at a focal point of the curved surface of the fixed mirror.

Roberts discloses a light emitting apparatus with a rear and a fixed mirror (see Fig. 1, time 53). Roberts further discloses that the light is emitted from the focal length of the mirror (column 3, lines 60-65). This improves the brightness of the device.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the light-emitting device of Turner et al. to include that the light-emitted is at the focal point of the curved surface of the fixed mirror, as taught by Roberts, to improve the brightness of the device.

19. As to claims 12 and 13, Turner et al. disclose the apparatus of claim 5. Turner et al. fail to disclose that the fixed mirror is made of a ceramic material, specifically alumina, Si_3N_4 or AlN.

Roberts discloses a light emitting apparatus with a rear and a fixed mirror (see Fig. 1, time 53). Roberts further discloses that the fixed mirror is made of a ceramic, specifically alumina (column 4, lines 1-10). Ceramics are ideal mirror shells in lamps because they are cheap insulators.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the light-emitting device of Turner et al. to include that the fixed mirror is made of a ceramic material, specifically alumina, Si_3N_4 or AlN , as taught by Roberts, to have a mirror made from a cheap insulating material.

Response to Arguments

20. The rear mirror of Turner is fixed to the screen assembly (20). Integral by definition means composed of parts that together make a whole. The rear mirror is fixed to the screen assembly, the bulb passes through a diameter opening portion of the. The mirror and the bulb are both fixed, therefore the two are integral since the fixed bulb passes through the fixed mirror. Also, it has been held that forming in one piece an article, which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Final Rejection

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning *ac*

6 March 2006

Ashok Patel
ASHOK PATEL
PRIMARY EXAMINER